

Patent claims

1. A method for filling a drinks container (10) with
a drink (15) which is produced from an initial
5 liquid (24) and has a gas dissolved therein
comprising the steps of
 - filling the drinks container (10) with the
drink (15) in such a manner that a pre-
determined residual gas volume (14) remains
10 above the drink (15) in the drinks container
(10), and
 - closing a container opening (12) of the
drinks container (10),
characterized in that a predetermined amount of
15 liquid oxygen is introduced into the drinks
container (10) and the drinks container (10) is
closed directly after introduction of the liquid
oxygen.
- 20 2. The method as claimed in claim 1,
characterized in that the predetermined amount of
liquid oxygen is at least about 0.1 ml, preferably
between about 0.1 ml and about 3.0 ml, more
preferably between about 0.1 ml and about 1.5 ml,
25 still more preferably between about 0.1 ml and
about 1.0 ml.
3. The method as claimed in claim 1 or 2,
characterized in that the amount of liquid oxygen
30 to be fed into the drinks container (10) is
determined by appropriate choice of the opening
time of a valve of constant passage cross section.
4. The method as claimed in one of claims 1 to 3,
35 characterized in that the oxygen is only liquefied
in a heat exchanger (66) charged with gaseous
oxygen and a cooling medium, for example liquid
nitrogen, shortly before being fed into the drinks

container (10).

5. The method as claimed in one of claims 1 to 4,
characterized in that the gas dissolved in the
5 drink (15) comprises oxygen or a carbon dioxide-
oxygen mixture.
6. The method as claimed in claim 5,
characterized in that the carbon dioxide-oxygen
10 mixture comprises between about 200 mg/l and about
500 mg/l, preferably between about 200 mg/l and
about 400 mg/l, of oxygen and between about
1.0 g/l and about 4.0 g/l, preferably between
15 about 1.0 g/l and about 2.0 g/l, more preferably
between about 1.4 g/l and about 1.8 g/l, still
more preferably between about 1.5 g/l and about
1.7 g/l, of carbon dioxide.
7. The method as claimed in one of claims 1 to 6,
20 characterized in that the initial liquid (24) has
already been enriched with carbon dioxide before
it is enriched with oxygen.
8. The method as claimed in claim 7,
25 characterized in that the initial liquid (24) is
enriched with carbon dioxide without degassing it
in advance.
9. The method as claimed in one of claims 1 to 6,
30 characterized in that the initial liquid (24) is
enriched with a carbon dioxide-oxygen mixture.
10. The method as claimed in claim 9,
35 characterized in that the carbon dioxide-oxygen
mixture comprises between about 2% by volume and
about 50% by volume of oxygen and between about
98% by volume and about 50% by volume of carbon
dioxide, preferably about 25% by volume of oxygen

and about 75% by volume of carbon dioxide.

11. The method as claimed in one of claims 1 to 10,
characterized in that the initial liquid (24) is
5 cooled to a temperature of between about 3°C and
about 9°C, preferably about 6°C, before it is
enriched with gas.
12. The method as claimed in the preamble of claim 1
10 and if desired the characterizing part of one of
claims 1 to 11,
characterized in that the drinks container (10) is
prepressurized with an inert gas, for example
carbon dioxide gas, before it is filled with the
15 drink (15).
13. The method as claimed in claim 12,
characterized in that the prepressurizing pressure
of the inert gas is between about 5.0 bar and
20 about 8.0 bar, preferably between about 6.5 bar
and about 7.0 bar.
14. The method as claimed in one of claims 1 to 13,
characterized in that the initial liquid (24)
25 essentially comprises water.
15. The method as claimed in one of claims 1 to 14,
characterized in that at least one constituent is
added to the initial liquid (24).
30
16. The method as claimed in the claims 7 and 15,
characterized in that the at least one constituent
is added to the initial liquid (24) between the
enrichment with carbon dioxide and the enrichment
35 with oxygen.
17. A device (20) for filling a drinks container (10)
with a drink (15) which is produced from an

initial liquid (24) and has gas dissolved therein, in particular for carrying out the method as claimed in one of claims 1 to 16, comprising

- a filling device (50) which fills the drinks container (10) with the drink (15) in such a manner that a predetermined residual gas volume (14) remains in the drinks container (10) above the drink (15), and
- a closing device (74) which closes the drinks container (10),

characterized in that it additionally comprises a liquid oxygen feed device (64) which is disposed immediately upstream of the closing device (74) in the transport direction of the drinks containers (10) and which introduces a predetermined amount of liquid oxygen into the drinks container (10).

18. The device as claimed in claim 17, characterized in that the liquid oxygen feed device (64) comprises a valve having constant passage cross section, the duration of opening of which valve can be controlled in time.

19. The device as claimed in claim 17 or 18, characterized in that the liquid oxygen feed device (64) comprises a heat exchanger (66) which is connected to a first feed line (68) for feeding gaseous oxygen and secondly to a second feed line (70) for feeding cooling medium, for example liquid nitrogen.

20. The device as claimed in one of claims 17 to 19, characterized in that the gas dissolved in the drink (15) is oxygen or a carbon dioxide-oxygen mixture.

21. The device as claimed in claim 20, characterized in that a first enrichment device

(32) is provided for enriching the initial liquid (24) with carbon dioxide and a second enrichment device (44) is provided for enriching the initial liquid (24) with oxygen which is disposed downstream of the first enrichment device (32) in the transport direction of the initial liquid (24).

22. The device as claimed in claim 20, characterized in that an enrichment device (32') is provided for enriching the initial liquid (24) with a carbon dioxide-oxygen mixture.

23. The device as claimed in one of claims 17 to 22, characterized in that a cooling device (28) is provided which cools the initial liquid (24) coming from a reservoir (22) before the enrichment with gas preferably to a temperature of between about 3°C and about 9°C, more preferably to a temperature of about 6°C.

24. The device as claimed in the preamble of claim 17 and, if appropriate, the characterizing part of one of claims 17 to 23, characterized in that a prepressurizing device (56) is provided which prepressurizes the drinks container (10), before it is filled with the drink (15), with an inert gas, for example carbon dioxide gas.

25. The device as claimed in claim 24, characterized in that the prepressurizing pressure of the inert gas is between about 5.0 bar and about 8.0 bar, preferably between about 6.5 bar and about 7.0 bar.

26. The device as claimed in one of claims 17 to 25, characterized in that a mixing device (38) is

provided which mixes the initial liquid (24) with at least one constituent.

27. The device as claimed in claims 21 and 26,
5 characterized in that the mixing device (38) is disposed between the first enrichment device (32) and the second enrichment device (44) in the transport direction of the initial liquid (24).
- 10 28. The device as claimed in one of claims 17 to 27, characterized in that the filling device (50) is a filling device operating according to the isobarometric filling principle.
- 15 29. A drinks container (10) having a drink (15) comprising dissolved gas absorbed therein, in particular filled by a method as claimed in one of claims 1 to 16, in particular using a device (20) as claimed in one of claims 17 to 28,
20 characterized in that, after it is filled with the drink (15) and its container opening (12) is closed, the drinks container is put under pressure by vaporizing at least a portion of a predetermined amount of liquid oxygen introduced
25 into it.
30. The drinks container as claimed in claim 29, characterized in that the pressure has a value of between about 3.1 bar and about 7.0 bar,
30 preferably of between about 3.1 bar and about 6.0 bar, more preferably of between about 3.5 bar and about 4.6 bar.
31. The drinks container as claimed in claim 29 or 30,
35 characterized in that its container wall (11) is fabricated essentially from glass or plastic, preferably PET, or metal, preferably tin plate or aluminum, or a combination of at least two of

these materials.

32. The drinks container as claimed in claim 31,
characterized in that the container wall (11)
5 which is fabricated from plastic has a multilayer
structure.
33. The drinks container as claimed in one of
claims 29 to 32,
10 characterized in that a sealing element (16),
preferably a sealing disk, is disposed between the
container opening (12) and a lid (17) closing the
container opening (12).